Space Weather Forecast

Issued on Wednesday, 27 July 2022 at 13:14 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Slight Chance of Moderate class flare throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with 2 common class flares observed in the last 24 hours, one from a sunspot that has now rotated off the Earth-facing disc, over the northwest limb. The other from a potential new region rotating onto the disc, from the southeast. Otherwise, there four numbered sunspot regions on the Earth-facing disc, all of which are small and simple with little sign of growth, along with one very small unnumbered region having also emerged in the southwest. No Earth-directed CMEs (coronal mass ejections) were observed.

Solar Wind / Geomagnetic Activity: Solar winds, as measured by DSCOVR and ACE at L1, slowly declined through the period from elevated to slightly elevated levels (520km/s to 430 km/s). The strength of the magnetic field carried by the wind remained weak, with its north-south component variable but mostly negative (southward pointing). Geomagnetic activity was Quiet.

Energetic Particles / Solar Radiation: The count rate of energetic particles remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Activity is likely to remain Very Low to Low with only a slight chance of moderate-class X-ray flares.

Solar Wind / Geomagnetic Activity: No CMEs have been assessed as Earth-directed. Solar winds are expected to be slightly elevated, before the arrival of the fast wind of a coronal hole either late day 3 or day 4 (29th or 30th). No other significant sources of enhancement are anticipated, with geomagnetic activity remaining mostly Quiet with isolated Unsettled spells. This increasing to Unsettled to Active either late day 3 or day 4 (29th or 30th) with a chance of isolated G1/Minor Storm intervals.

Energetic Particles / Solar Radiation: The count rate of energetic particles is forecast to remain at background with no solar radiation storms occurring.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	10	30
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	5	5	5	5
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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